

log 77

# **DIVA COMPUTROLLER V**

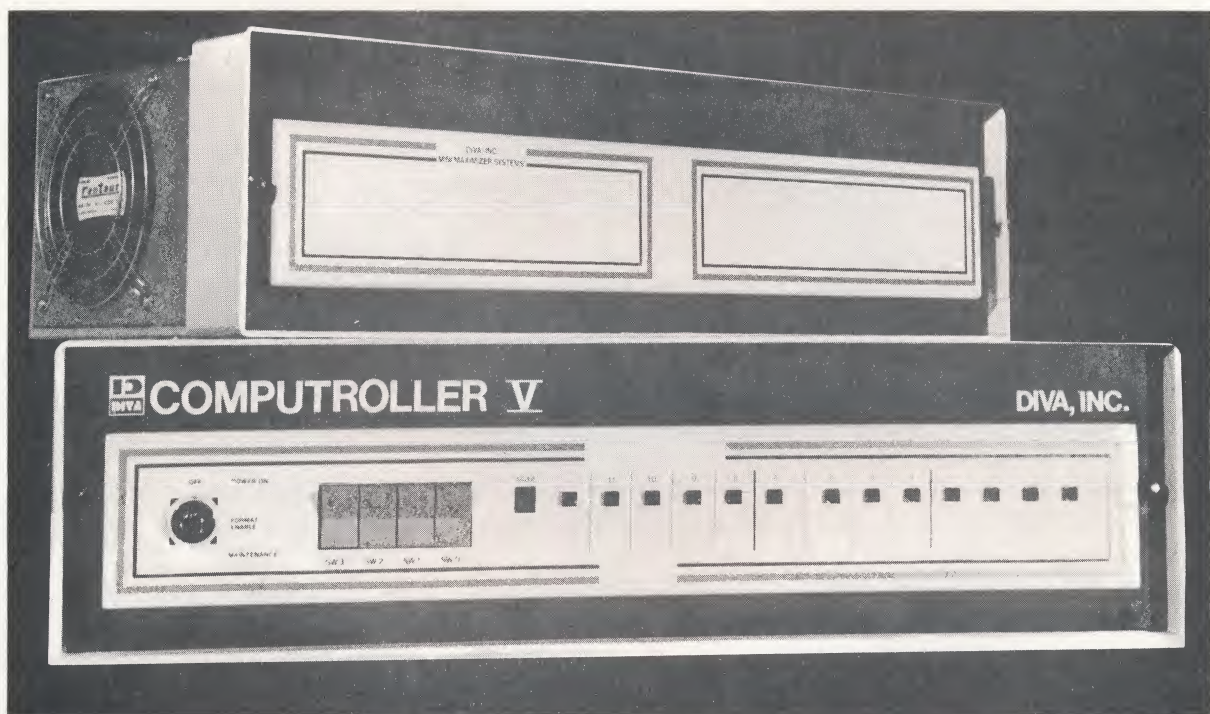
## **Technical Information & Specifications**

→ DOES NOT  
BUFFER BY BLOCKS.

Note 'psuedo bits' (p.1)



# COMPUTROLLER V



DIVA, INC.  
607 Industrial Way West  
Eatontown, New Jersey 07724  
(201) 544-9000



## DIVA, INC. COMPUTROLLER V

### Salient Features

#### A. DATA PATH

1. COMPUTROLLER V does not buffer records. All data flows from the disc through a FIFO to the HPI. The FIFO allows the average transfer rate into the Host Processor to be averaged over the count and data fields and the gaps.
2. Integrity of the data path is maintained with 2 parity bits (one per byte) that are maintained from the HP data bus through the HPI buffer, the FIFO and the word buffer in the drive formatter.



#### B. DRIVE REQUIREMENTS

1. COMPUTROLLER V requires the drive to supply a 1:1 data clock when writing or reading. Also, the write predistortion must be in the drive. The basic drive data interface is NRZI.
2. Electrical: A specific coupler section in the formatter is required for each type of drive interface. This is localized on one board.

#### C. CONTROL

1. COMPUTROLLER V is controlled by a specialized microprocessor of DIVA's own design. This allows an emulation of one or more types of Host Processor drives and the control of the drive formatter. The physical characteristics are as follows:
  - a. The program is stored in 8KB proms mounted in zero-insertion-force sockets. This permits simple, economical upgrading of emulators in the field. Also, test program proms can be installed quickly to test a particular feature of the system.
  - b. The processor cycles: 125 NS.
  - c. Data Path: 8 bytes
  - d. Capacity: 4 banks of 4096 bytes.
2. The front panel displays 16 bits. Three control switches can be poled by the program, permitting 8 different 16 bit fields to be displayed.

#### D. FORMATTER DRIVE ORGANIZATION

1. Data written by the COMPUTROLLER V is formatted to be IBM 3330 compatible. Compatibility as used here is physical, not logical. In order to achieve the maximum data capacity, the following logical deviations are made:
  - a. Home address is not written.
  - b. Key fields are not limited to 255 bytes.
  - c. More than one key or data field may follow a count field.
  - d. The field length in the count field is ignored. Field length is fixed by rams in the formatter.
  - e. All format characteristics are controlled by ROMS to allow flexibility.
2. Field Structure:
  - a. Each count field is preceded by an address mark.
  - b. Each field has appended to it a 7 byte ECC code. When used to correct errors this code will correct a single burst of up to eleven errors in any field.
  - c. The formatter automatically connects count fields when they are being scanned by the control program.
  - d. Special commands form data fields
    1. Write data field

2. Read data field
  3. Compare data field with data from Host Processor. The result is kept as an algebraic result: greater than, equal, and less than.
3. Serial Transfer Rate:
- The maximum drive data rate supported will be  $10 \times 10^6$  bits/sec. The actual data rate is controlled by the clock supplied by the drive.

#### E. PHYSICAL DESCRIPTION

1. COMPUTROLLER V is housed in a  $5\frac{1}{4}$ " high chassis. In addition, there is a power unit that is  $5\frac{1}{4}$ " high.
  - a. In shallow racks such as DEC uses, these must be stacked. A  $10\frac{1}{2}$ " high front panel then covers both the power unit and the chassis.
  - b. In deeper racks, the power unit may be mounted behind the chassis and a  $5\frac{1}{4}$ " front panel used.
  - c. The electronics are mounted on 3 circuit boards. Only one board is unique to the type of drive used.



## SPECIFICATION, DIVA COMPUTROLLER V

### DESCRIPTION:

COMPUTROLLER V is the latest in DIVA's line of programmable disc controllers, designed to support the highest capacity/data rate disc mass storage devices available for minicomputers. It employs a sophisticated implementation of Error Correction (ECC) which allows recovery of data in the presence of burst errors. An optimized, special purpose programmed architecture and an advanced emulator firmware package team up to provide a heretofore unattainable combination of software compatibility, hardware reliability, throughput power and system economy. A separate field-changeable "drive personality" board allows for the COMPUTROLLER V to support drives of most manufacturers, providing for future flexibility.

COMPUTROLLER V's emulation capability is one of its important characteristics. In conjunction with a flexible host processor interface board, peculiar to each manufacturer's host processor, the COMPUTROLLER V's firmware can be tailored to emulate in detail the device interface and command set to which it is targeted. This results in a controller which at the user's level is program indistinguishable from the CPU manufacturer's own peripheral. Since the device is then able to operate under the operating system's device handlers, the headache of incorporating a new driver into the system software is eliminated.

For the OEM customer, emulation of a particular interface is not as important as it is to the end user. It provides him, however, with the ability to specify a special purpose, applications-oriented interface in which the intelligence of the COMPUTROLLER V is used to lessen the I/O burden of the host processor. (Such schemes as command list processing or data chaining). Some very powerful "dual processors" have been configured involving a COMPUTROLLER and a host minicomputer.

COMPUTROLLER V is a piece of rack-mounted hardware requiring 5¼ inches of panel height in racks of 28 inches depth or more, and either 5¼ or 10½ inches in shallower racks depending on rack layout. Connection to the host processor is via a cable to the coupler board that plugs into any unused I/O slot in the main frame. A drive signal distribution panel, 5¼ inches in height, mounts on the rear rack rails.

### FEATURES:

#### PERFORMANCE:

- \* Burst FIFO load/dump rate—2664 K Bytes/sec.
- \* Burst FIFO thruput rate—1332 K Bytes/sec.
- \* Disc transfer rate—up to 1209 K Bytes/sec.
- \* Buffer—FIFO type, 240 or 496 16 bit words.
- \* Error Correction—automatic, within controller.
- No host processor recovery sequence is necessary.
- \* Seek command—specific or implied, accepts either.
- \* Full cylinder transfers—performs mid-transfer seeks.
- \* Full disc transfers—yes, limited only by vendor software.
- \* Formatting—ROM resident formatter. Special ROM formatters can be supplied, or specials may be driven by host processor software.. Sectors may be interleaved.
- \* Can transfer a full cylinder of data without loss of turns on most CPU's (dependent on system loading).

#### INTERFACE:

- \* Coupler plugs into standard I/O slot for easy installation.
- \* Addressed in the same fashion as the peripheral it emulates.
- \* Since fully buffered, does not require highest priority on DMA bus. (Cannot "data late"). Should be allowed back-to-back cycles once request honored, however, in order to maintain data rate. Selectable throttling rate employed.

- \* COMPUTROLLER may be mounted optionally up to 50 feet away from host processor.

#### SYSTEM SOFTWARE COMPATIBILITY:

- \* Guaranteed to run all standard operating software supplied by mainframe vendor supporting the peripheral being emulated (except for diagnostics, which DIVA supplies to test the full features of its hardware).
- \* Can be field upgraded, if necessary, by our Customer Services Department, to assure compatibility with future software releases supporting the emulated peripheral.
- \* Currently available configurations and the vendor software under which they have been qualified appear in the table below. All software is unmodified.

Mainframe Vendor	Peripheral Emulated		Major Proprietary Vendor Software Under Which Qualified
DEC	RPO3	(114)	RSX11, RSTS, DOS, UNIX, MUMPS
DEC	RPO4	(3330)	SAME
DG	4057A	(114)	RDOS rev 4, MICE
	4231A	(3330)	SAME
INTERDATA	M46-410	(cartridge disc)	DOS, RTOS, OS/16, OS/32
	M46-421	(114)	SAME

#### DIAGNOSTIC SOFTWARE:

- \* 1st Level Test— System Exerciser. Performs reads, writes, seeks, variable length data transfers in a highly interactive and random manner. Full operator control. Executes in host processor.
- \* 2nd Level Test— Coupler diagnostic exercises the data path between host processor and COMPUTROLLER at memory rates, using variable block sizes. Full operator control. Resides in COMPUTROLLER ROM.
- \* 3rd Level Test— Formatter Diagnostic. Fully exercises formatter, reading, writing, formatting disc. Extensive operator control. Resides in COMPUTROLLER ROM.
- \* 4th Level Test— Microprocessor Instruction Exerciser. Verifies proper microprocessor operation. Test unit ROM resident.

#### RELIABILITY:

In the interest of reducing down time to an absolute minimum, the following steps have been taken to assure the highest reliability of the product:

- \* Conservative power supply design, built of the highest grade components, and employing overspec. forced air cooling.
- \* Microprogrammed architecture, replacing logic with software. Random logic largely replaced with ROM's and other regular logic arrays in interest of rapid fault analysis and replacement.
- \* Multiwire circuit board construction, assuring ease of component replacement.
- \* Large scale (15" x 15") board implementation, reducing interconnects between boards, with their attendant reliability problems.

#### MAINTAINABILITY:

- \* Separate power supply for easy replacement.
- \* Only four (4) electronics board types to stock, easily swappable in the field.
- \* No analog adjustments outside of power supply.
- \* Multiwire construction of electronics boards assures easy replacement of IC's without risk of board damage.
- \* Built-in Test Equipment utilizing microprocessor facilitates rapid fault detection and isolation. Off-line interactive self-check mode.



- \* Plug-in portable test box and board extenders available as diagnostic aids.

#### POWER REQUIREMENTS:

- \* Selectable taps for: 100 volts + 10% at 5 amps  
120 volts + 10% at 4.2 amps  
220 volts + 10% at 2.3 amps  
240 volts + 10% at 2.1 amps
- \* Line Frequency: 47HZ to 63HZ  
Power supply delivers +5 volts at 26 amps, -5 volts at 2.5 amps, -12 volts at 1.5 amps.  
Remote sensing, foldback protected.

#### OPERATING ENVIRONMENT:

- \* Ambient Temperature: Operating 0 C to 40 C  
Storage -30 C to 60 C
- \* Relative Humidity: Operating 20% to 80% non-condensing  
Storage 5% to 95% non-condensing

#### WEIGHT, LESS CABLES AND DRIVES:

- \* COMPUTROLLER V chassis, front panel— 33 lbs (15KG)
- \* Power supply— 27 lbs (12KG)

#### OUTSIDE DIMENSIONS:

- \* COMPUTROLLER V chassis: 17.2" W  
19.4" L  
5.25" H
- \* Power Supply: 17" W  
8.5" L  
5.25" H
- \* Mounting: 19" rack  
RETMA standard

#### CABLE LENGTHS, Ft.:

	Standard	Option, up to:
Coupler (CCI) cable	15	50
Read/write (DIST panel to drive)	15	40
Control(DIST panel to 1st drive)	15	40
Control chaining cable	5	—
DIST panel to COMP V chassis	6	—



**FUNCTIONAL SPECIFICATION: DIVA DD54-E/RJPO4 DISC SYSTEM  
FOR PDP-11 MINICOMPUTERS**

Controller	COMPUTROLLER V
Host Processor	
Interface Board	Model 116
Compatibility	Any operating system supporting DEC RJPO4 disc systems.

**Emulated Pack Format:**

Bytes/sector	512
Sectors/track	22
Tracks/cylinder	19
Cylinders/pack	324
Addressable blocks	
(full RP cylinders)	135, 432
(total)	135, 795

**Formatted Data Capacity:**

Bytes/spindle	69,341,184
Bytes/system	554,729,472

Maximum Spindles 8

Access with single R/W 1 to 65,534 16-bit words

Applications End-user RJPO4 replacement. Designed to run under DEC software and drivers with no driver modifications.

Limitations Capacity roughly 80% of RJPO4. Drivers not supplied but an applications note indicating the required system patches (to reduce RJPO4 size parameters), is part of the installation documentation. Shipped with diagnostic which runs on PDP-11 in addition to regular COMPUTROLLER V internal diagnostics.

Important Constants The full capacity of the disc is 135,795 sectors. For those operating systems which administer sectors, not cylinders, the double precision representation of this is:

000002 (8)

011163 (8)

If the last cylinder is not used for system use, the capacity is 135,630 sectors. In double precision this is:

000002 (8)

010716 (8)

**Special Capacity**

Features Some diagnostic programs are not readily patched to reduce the capacity of the disc. Examples of these are:

DECX11

BAD (used in RSX-11M)

When the COMPUTROLLER V key switch is in the format position, the emulated disc will appear to be full (RPJ/W 04) size. This is done by folding all non-existent drive cylinders back on the last cylinder. This permits write operations of up to 165 (10) sectors to be unique; hence a following read operation will properly read what was written.

**SUMMARY SPECIFICATIONS, DD-54 DISC DRIVE**

* Capacity Unformatted	80 million 8-bit bytes
* Transfer Rate (drive)	1.209 MB/sec.

*	Access Time		
	Track to Track	7 ms max.	
	Average Position	30 m sec.	
	Full Stroke	55 m sec. max.	
	Average Latency	8.33 m sec.	
*	Rotational Speed	3600 RPM	
*	Pack Start/Stop Time		
	Start Time	22 sec.	
	Dynamic Breaking	15 sec.	
*	Densities		
	Track Density	384 Tracks/in.	
	Recording Density	4040 Bits/in. (outer track)	
		20,160 Bytes/track unformatted	
		100,800 Bytes/cylinder unformatted	
*	Disc Pack (not included)	DIVA DPK-207-21	
	Type	CDC9877	
	Surfaces	5 recording + 1 servo	
	Tracks/surface	823	
*	Operating Methods		
	Recording	Modified Frequency Modulation	
	Positioning	Linear Motor, track-following servo	
*	External Drive Dimensions	17.25" wide x 10.5" high x 30" deep	
*	Weight	168 lbs (76.2 KG)	
*	Power		
	Line Frequency	60 + 1% HZ	50 + 1% HZ
	Volts at amps	120 + 10% volts at 12 amps	220 + 10% VAC at 6 amps
	Consumption	720 watts	720 watts
*	Environmental Limitations		
	Relative Humidity	20% to 80% operating	
		8% to 80% non-operating	
		5% to 95% shipping	
		(all non-condensing)	
	Temperature	16 °C to 32 °C operating—max. change 6.7° C/hr.	
		10 °C to 43 °C non-operating	
		-17° C to 60 °C shipping	
	Altitude	0 ft. to 6,000 ft. operating	
		0 ft. to 15,000 ft. shipping	



Mini Maximizer Systems





Aug 77

## **DIVA, Inc.** **DD Series** **Disc Storage Systems** **for PDP-11® Processors**

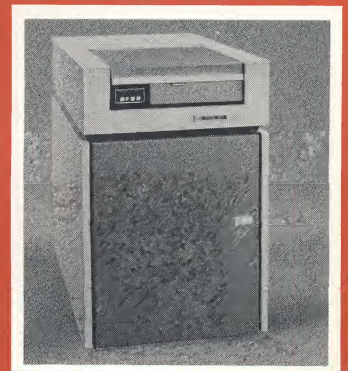
### **System Description**

The DD storage systems are large capacity, high performance, cost effective disc storage sub-systems for use with the DEC PDP-11® series of processors. The basic sub-system provides the user with 25-300 million bytes of random access disc storage on removable media with expansion capability to 2.4 billion bytes by the addition of seven disc drives.

DIVA's DD Series sub-system hardware includes: the Computroller V, a unique micro-processor based disc controller with its own forced air-cooled power supply; a special PDP-11 computer interface board which plugs into any unused 6-wide I/O slot in the mainframe; and up to eight disc drives.

Standard within the DD system is software compatibility with all DEC standard operating systems. This has been designed by tailoring the system's firmware to emulate DEC's software. The result is a peripheral disc system which, at the user's level, is virtually indistinguishable from DEC's own peripheral.

DIVA's Computroller V, the latest in our line of programmable disc controllers, is designed to support the highest capacity/data rate disc storage devices available. DIVA's disc systems for PDP-11 processors can be installed with disc drives that have a 50% faster transfer rate and 50% more capacity than the fastest and largest available from DEC. It employs a sophisticated implementation of Error Correction (ECC) on both header and data fields which allows recovery of marginal data. Its micro-programmed architecture (replacing logic with software), advanced emulator firmware package and resident self-checking diagnostics team up to provide an unmatched combination of software compatibility, hardware reliability, throughput power and system economy. A separate field changeable drive interface board allows for the support of drives from most manufacturers.



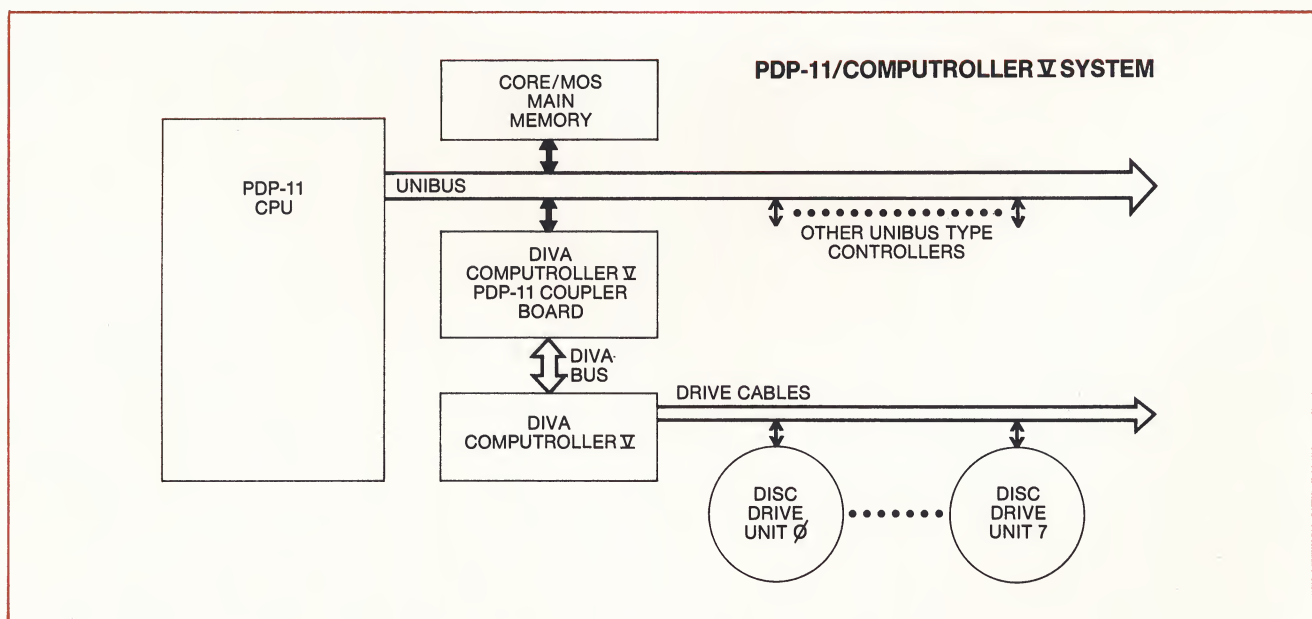
## Features:

### System

- Operating Software Transparency
  - RSTS E
  - RSX11D
  - RSX11M
  - RT11
  - MUMPS
  - UNIX
  - DOS
- Error Correction (ECC)—Automatic within Controller for both header and data fields.
- Disc Drive Interface
  - RPO2
  - RPO3
  - RPO4
  - RPO5
  - RPO6
- Resident Self-checking Diagnostics
- Micro-processor Technology
- 3330-type Technology
- Disc Transfer Rate—up to 1209K Bytes/sec.
- Dual Processor Support

### Performance

- Eight Spindle Option
- Up to 300 Megabytes/Spindle Unformatted
- Up to 2.4 Billion Bytes of Random Access Disc Storage
- Disc Transfer Rate—up to 1209K Bytes/sec.
- Buffer—FIFO Type. 496 16-bit words.
- Seek Command—accepts either specific or implied
- Simple Read/Write Command transfers up to 65.5K words on RPO4; 32K on RPO2.
- Formatting—ROM resident formatter. Special ROM formatters can be supplied, or specials may be driven by host processor software. As an option, sectors may be interleaved.
- Can transfer a full cylinder of data without loss of turns on most CPU's (dependent on system loading).





## Interface

- Coupler plugs into standard PDP-11 small peripheral 6-wide I/O slot for easy installation.
- Addressed in the same fashion as the peripheral it emulates.
- Selectable throttling rate employed. Since fully buffered, does not require highest priority on DMA bus. (Cannot "data late.") Should be allowed back-to-back cycles once request honored, however, in order to maintain data rate.
- COMPUTROLLER V may be mounted optionally up to 50 feet away from host processor.

## System Software Compatibility

- Will run all standard operating software supplied by DEC supporting the peripheral being interfaced, including system reliability diagnostics such as DECX11. In addition, DIVA supplies controller diagnostics to test the full features of its hardware.
- Can be field upgraded, if necessary, by our Customer Services Department, to assure compatibility with future software releases supporting the emulated operating system software.
- Currently available configurations and the DEC software under which they have been qualified appear in the table below. All software is unmodified unless noted.

**PDP-11 Processor Configuration Table**

DIVA Disc System	25 M/bytes	50 M/bytes	80 M/bytes	100 M/bytes	200 M/bytes	300 M/bytes
C.P.U.	11/04 All 11/05 PDP-11 11/34 Proces- 11/45 sors 11/70	11/04 All 11/05 PDP-11 11/34 Proces- 11/45 sors 11/70	11/04 All 11/05 PDP-11 11/34 Proces- 11/45 sors 11/70	11/04 All 11/05 PDP-11 11/34 Proces- 11/45 sors 11/70	11/04 All 11/05 PDP-11 11/34 Proces- 11/45 sors 11/70	11/04 All 11/05 PDP-11 11/34 Proces- 11/45 sors 11/70
Disc Drive Interface	RP02	RP03	RP02** RP04*	RP04 RP05	RP04* RP05* RP06	RP04* RP05* RP06*
Speed	806 KB	806 KB	1209 KB	806 KB	806 KB	1209 KB
Operating System	RT-11 RSTS-E RSX11D RSX11M	RT-11 RSTS-E RSX11D RSX11M	RT-11 RSTS-E RSX11D RSX11M	RT-11 RSTS-E RSX11D RSX11M	RT-11 RSTS-E RSX11D RSX11M	RT-11 RSTS-E RSX11D RSX11M
Transparency	MUMPS UNIX DOS	MUMPS UNIX DOS	UNIX DOS	MUMPS UNIX DOS	MUMPS UNIX DOS	MUMPS UNIX DOS
Bus Interface	Unibus Cache bus††	Unibus Cache bus††	Unibus Cache bus***	Unibus† Cache bus	Unibus† Cache bus	Unibus† Cache bus
Formatted Capacity	20.5 M/bytes	41.0 M/bytes	69.5 M/bytes	87.2 M/bytes	174.2 M/bytes	261.6 M/bytes

\* Requires patches to the DEC supplied driver as not supported by DEC.

\*\* Three (3) logical RPO2's on a single spindle.

\*\*\* Not available on RPO2.

† Unibus Interface on 11/70 having more than 124K memory requires DEC driver changes to incorporate Unibus mapping.

†† Cache bus RPO2-RPO3 available as special option.



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## Diagnostic Software

### 1st Level Test

System Exerciser. Performs read, write, seek, variable length data transfers in a highly interactive and random manner. Full operator control. Executes in host processor.

### 2nd Level Test

Coupler diagnostic exercises the data path between host processor and COMPUTROLLER at memory rates, using variable block sizes. Full operator control. Resides in COMPUTROLLER ROM.

### 3rd Level Test

Self-test Diagnostic. Exercises COMPUTROLLER V reading, writing, formatting disc. Extensive operator control. Resides in COMPUTROLLER ROM. Test unit provides additional control and diagnostic aid.

### 4th Level Test

Microprocessor Instruction Exerciser. Verifies proper microprocessor operation. Test unit ROM resident.

## Reliability

In the interest of reducing down time to an absolute minimum, the following steps have been taken to assure the highest reliability of the product:

- Conservative power supply design, built of the highest grade components and em-

ploying forced air cooling beyond minimum specifications.

- Microprogrammed architecture, replacing logic with software. Random logic largely replaced with ROM's and other regular logic arrays in interest of rapid fault analysis and replacement.
- Multiwire circuit board construction provides reliability, performance, and density not attained in conventional PC boards.
- Large scale (15" x 15") board implementation enhances reliability by board interconnections and mechanical contacts.

## Maintenance

- Separate interchangeable power supply.
- Only four (4) electronic board types to stock, easily swappable in the field.
- No analog adjustments outside of power supply.
- Multiwire construction of electronic boards assures easy replacement of IC's without risk of board damage.
- Built-in Test Equipment, utilizing microprocessor, facilitates rapid fault detection and isolation. Off-line interactive self-check mode.
- Plug-in portable test box and board extenders available as diagnostic aids.



**Diva, Inc.**

607 Industrial Way West • Eatontown, New Jersey 07724 • Tel: (201) 544-9000 • TWX: 710-722-6645

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# DIVA DD-40 SERIES

## price list

EQUIPMENT	DESCRIPTION	PRICE	MAINT/MO.
DD-40	100 m/byte disc system	\$ 22,500.00	\$ 285.00
DD-42	200 m/byte disc system	24,200.00	285.00
DD-43	300 m/byte disc system	26,100.00	330.00
DS-40	Add on 100 m/byte disc drive	14,500.00	190.00
DS-42	Add on 200 m/byte disc drive	15,100.00	205.00
DS-43	Add on 300 m/byte disc drive	16,700.00	220.00

ACCESSORIES	DESCRIPTION	PRICE
DPK-207-0021	Disc pack for 9100	\$ 980.00
DPK-207-0022	Disc pack for 9200	1,260.00
DPK-207-0024	Disc pack for 9300	1,350.00
DPK-200-CE-0067	CE pack for 9100	2,995.00
DPK-200-CE-0068	CE pack for 9200	3,500.00
DPK-200-CE-0069	CE pack for 9300	4,250.00
	Front panel (power supply)	85.00
DCO-8	8 spindle option	1,000.00
	Technical manual (drive)	100.00
	Operator manual (controller)	100.00
	Maintenance manual (controller)	125.00
	Listings (emulator)	125.00
	Single system installation	1000.00
	Add on drive each	450.00
	Overlap seek	350.00

### NOTE:

1. A 10% discount may be applied on each drive when purchased at the same time as disc system.
  2. Maintenance contract prices are within a 50 mile radius of an authorized service facility.
  3. Cable set for each drive is included in the price of each add on drive.
  4. Multiprocessor and Dual Port—consult factory.
  5. A 10% educational discount on all systems (should quantity discount be larger than 10%, only the quantity discount will apply).
  6. \$ 100.00 minimum order.
- Prices are subject to change without notice.

**DIVA, INC., 607 Industrial Way West, Eatontown, New Jersey 07724 TEL: (201) 544-9000 TWX: 710-722-6645**  
DOMESTIC

SALES OFFICES: Atlantic Region (201) 544-9000; Midwest Region (517) 694-2310; Western Region (213) 991-0312; Mountain Region (602) 943-3611; Northeast Region (617) 275-1436.

SERVICE OFFICES: Atlantic Region (201) 544-9000; Midwest Region (312) 837-6181; Western Region (714) 842-6054; Southwest Region (713) 785-1072; Northeast Region (617) 275-1436; Southeast Region (301) 949-1360  
INTERNATIONAL

Diva has ten international sales offices, please consult factory for this listing.

827-0003-0-00  
April 1, 1977



# DIVA DD-50 SERIES

## price list

EQUIPMENT	DESCRIPTION	PRICE	MAINT/MO.
DD-50	27.3 m/byte disc system	\$ 14,500.00	\$ 235.00
DD-52	54.7 m/byte disc system	16,500.00	240.00
DD-54	82.1 m/byte disc system	18,500.00	245.00
DS-50	Add on 27.3 m/byte disc drive	7,500.00	130.00
DS-52	Add on 54.7 m/byte disc drive	8,500.00	135.00
DS-54	Add on 82.1 m/byte disc drive	10,000.00	140.00

ACCESSORIES	DESCRIPTION	PRICE
* DPK-207-65	Disc pack for 27.3 m/byte drive	\$ 475.00
* DPK-207-60	Disc pack for 54.7 m/byte drive	475.00
* DPK-207-0023	Disc pack for 82.1 m/byte drive	475.00
DPK-200-CE-60	CE pack for 27.3 m/byte and 54.7 m/byte drives	2,250.00
280-0020	Disc mounting kit (rack)	95.00
	Front panel (power supply)	85.00
DCO-8	8 spindle option	1,000.00
	Pedestal mounting	375.00
	Technical manual (drive)	100.00
	Operator manual (controller)	100.00
	Maintenance manual (controller)	125.00
	Listings (emulator)	125.00
	Single system installation	750.00
	Add on drive each	450.00
	Overlap seek option	350.00

### NOTE:

1. A 10% discount may be applied on each add on drive when purchased at the same time as disc system
2. Maintenance contract prices are within a 50 mile radius of an authorized service facility.
3. Cable set for each add on drive included in the price of each add on drive.
4. Multiprocessor and Dual Port—consult factory.
- \* 5. Disc packs ordered as separate items—\$ 675.00 each.
6. \$ 100.00 minimum order.
7. A 10% educational discount on all systems (should quantity discount be larger than 10%, only the quantity discount will apply).

Prices are subject to change without notice.

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842-6054; Southwest Region (713) 785-1072; Northeast Region (617) 275-1436; Southeast Region (301) 949-1360

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827-0004-0-00  
April 1, 1977



# DIVA

# COMPUTROLLER V

## accessories-price list

PART NUMBER	DESCRIPTION	PRICE
205-0008	Chassis Computroller V	\$ 516.00
215-0010	Front panel	985.00
200-0067-1	Cable front panel	70.00
202-0509	DX 800 Processor Board	3,450.00
202-0510	Formatter Board	2,475.00
202-0520	Coupler Board (Ampex)	2,250.00
202-1116	HPI DEC (Ampex)	1,750.00
202-1117	HPI DEC (CalComp)	1,750.00
202-0521	Coupler Board (CalComp)	2,250.00
202-0363	HPI Interdata	2,250.00
202-2020	HPI Data General	1,995.00
200-0094	A/C Cable Computroller V — 6 ft length	70.00
200-0095	D/C Cable Computroller V — 6 ft length	40.00
200-0110	Ground cable Computroller V	10.00
200-1055	HPI Cable Computroller V	185.00
203-0025	Distribution panel	485.00
206-0020	Power supply	750.00
200-0084	DC drive cable 80 m/byte — 6 ft or 15 ft length	250.00
200-0085	Signal drive cable 80 m/byte — 6 ft or 15 ft length	185.00
210-0007	Terminator drive	145.00
200-0107	Signal chaining cable — 6 ft length	180.00
	D/C cable DD-40 Series — 15 ft length	180.00
	Signal cable DD-40 Series — 15 ft length	180.00
226-0001-01	Extender board Computroller V	500.00
225-0001-0	Test Box Computroller V	3,000.00
	Test Kit (includes extender board, test box, cables)	3,250.00
	Diagnostic software 800/9 track	125.00
	Diagnostic software paper tape	125.00
	Diagnostic software other	150.00

**NOTE:**

1. Special length cable price is \$10.00 per foot over standard length — max. 40 feet.
2. With pedestals, Computroller V signal cable should be minimum 15 feet.
3. Standard cable lengths, all rack mount systems, 6 feet.
4. 10% discount applies to all orders over \$ 5,000.00 ordered for delivery at one time.
5. All emergency orders scheduled for shipment in less than 24 hrs must include 15% surcharge.
6. All orders less than 72 hrs do not receive discount.
7. \$ 100.00 minimum order.

Prices are subject to change without notice.

**DIVA, INC., 607 Industrial Way West, Eatontown, New Jersey 07724 TEL: (201) 544-9000 TWX 710-722-6645**

**DOMESTIC**

SALES OFFICES: Atlantic Region (201) 544-9000; Midwest Region (517) 694-2310; Western Region (213) 991-0312  
Mountain Region (602) 943-3611; Northeast Region (617) 275-1436

SERVICE OFFICES: Atlantic Region (201) 544-9000; Midwest Region (312) 837-6181; Western Region (714) 842-6054; Southwest Region (713) 785-1072; Northeast Region (617) 275-1436; Southeast Region (301) 949-1360

**INTERNATIONAL**

Diva has ten international sales offices, please consult factory for this listing.

827-0005-0-00  
April 1, 1977

# standard sales warranty



This WARRANTY is applicable to all DIVA products, systems or subsystems.

THE FOLLOWING IS IN LIEU OF ALL WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND OF ANY OTHER OBLIGATIONS ON THE PART OF THE SUPPLIER:

DIVA, except as otherwise hereinafter provided, warrants its goods (other than expendable items such as fuses, rubber parts, pilot lamps, drive belts, filters, heads and other parts classified as expendable by seller) against faulty workmanship or the use of defective materials. Buyer's remedies and DIVA's liability with respect to this warranty are set forth below. This warranty is the only warranty made by DIVA and can be amended only by a written instrument signed by a duly authorized employee of DIVA located in Eatontown, New Jersey. This warranty shall not be enlarged, waived, diminished or affected by, and no obligation or liability shall arise or grow out of, DIVA's rendering of technical advice or service in connection with Buyer's order or the goods furnished hereunder.

## REMEDIES:

- A. If the goods furnished by DIVA fail to conform with this contract, including DIVA's warranty, DIVA's sole and exclusive liability, and Buyer's sole and exclusive remedy, shall be at DIVA's option to repair or replace or credit Buyer's account for any such goods within ninety (90) days after shipment. Any part of the goods which prove to be defective in material or workmanship within ninety (90) days after shipment may be replaced on an exchange basis free of charge. Service labor required to replace such defective part will be free of charge for a period of ninety (90) days following shipment, provided the labor is performed during the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (excluding DIVA holidays), at DIVA's factory location. If travel is required beyond a 50 mile radius of an authorized service facility to the Buyer's site, all travel and subsistence expenses shall be borne by Buyer. Alternatively, Buyer may return goods to DIVA's plant in Eatontown, New Jersey, with shipment both ways at Buyer's expense, for repair. In no event shall DIVA be liable for incidental or consequential damages, including, but not limited to, costs of removal and re-installation of such goods, good will, overhead expenses, loss of profit, and loss of use.
- B. The remedies are available when DIVA's examination shall disclose to DIVA's satisfaction that such alleged defects actually exist and that they were not caused by Buyer's misuse, neglect, improper installation or testing, attempts to repair, or any other cause beyond the range of normal usage, or by accident, fire, or other hazard.

DIVA, INC.  
607 Industrial Way West  
Eatontown, New Jersey 07724  
(201) 544-9000 TWX: 710-722-6645

4/1/77



**SALES OFFICES**

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**ATLANTIC REGION**

Mr. George Kopach  
Eatontown, New Jersey  
(201) 544-9000

**MIDWEST REGION**

Mr. Max Jean  
Lansing, Michigan  
(517) 694-2310

**WESTERN REGION**

Mr. Don Tollefson  
Westlake Village, California  
(213) 991-0321

**MOUNTAIN REGION**

Mr. Phil Martineau  
Phoenix, Arizona  
(602) 943-3611

**NORTHEAST REGION**

Mr. Jim Harrison  
Eatontown, New Jersey  
(201) 544-9000

**NEW ENGLAND REGION**

Mr. Jim Watson  
Hudson, New Hampshire  
(617) 275-1436

**SOUTHWEST REGION**

Mr. Ron Christianson  
Houston, Texas  
(713) 721-1392

**SERVICE OFFICES**

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**ATLANTIC REGION**

Mr. Mike Anderson  
Eatontown, New Jersey  
(201) 544-9000

**Mr. Dee Pardue**

Eatontown, New Jersey  
(201) 544-9000

**Mr. Fred Griffith**

Eatontown, New Jersey  
(201) 544-9000

**MIDWEST REGION**

Mr. Keith Gerue  
Melrose Park, Illinois  
(312) 837-6181

**WESTERN REGION**

Mr. Bob Herring  
Huntington Beach, California  
(714) 842-6054

**NORTHEAST REGION**

Mr. James Dwareskas  
Bellingham, Massachusetts  
(617) 275-1436

**SOUTHEAST REGION**

Mr. Jim DeLung  
Laurel, Maryland  
(301) 949-1360

**SOUTHWEST REGION**

Mr. Jim Davies  
Houston, Texas  
(713) 721-1392